IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Applicants: Bednorz et al.

Serial No.: 08/479,810

Filed: June 7, 1995

Date: May 15, 2008

Docket: YO987-074BZ

Group Art Unit: 1751

Examiner: M. Kopec

For: NEW SUPERCONDUCTIVE COMPOUNDS HAVING HIGH TRANSITION TEMPERATURE, METHODS FOR THEIR USE AND PREPARATION

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

CORRECTED APPEAL BRIEF

Part VII

CFR 37 §41.37(c)(1)(vii)

VOLUME 3

Part 7

Argument For the Patentability of Each Rejected Claims 444-487

Respectfully submitted,

/Daniel P Morris/

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Reg. No. 32,053
(914) 945-3217

IBM CORPORATION
Intellectual Property Law Dept.
P.O. Box 218
Yorktown Heights, New York 10598

CLAIM 444/438

CLAIM 444/436 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
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> CLAIM 444 An apparatus according to anyone of claims 438, 439 and 440, wherein said means for conducting a superconducting current comprises a layered structure.

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> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 451 An apparatus according to anyone of claims 438, 439 and 440, wherein said means for conducting a superconducting current comprises oxygen in a nonstoichiomeric amount.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

CLAIM 451/439

CLAIM 451/439 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 439 An apparatus according to claim 438, wherein said means for conducting a superconductive current comprises a Tc greater than or equal to 26°K.
>
> CLAIM 451 An apparatus according to anyone of claims 438, 439 and 440, wherein said means for conducting a superconducting current comprises oxygen in a nonstoichiomeric amount.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe,

Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

CLAIM 451/440

CLAIM 451/440 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 440 An apparatus according to claim 438, further including a temperature controller for maintaining said means for conducting a superconducting current at a said temperature.
>
> CLAIM 451 An apparatus according to anyone of claims 438, 439 and 440, wherein said means for conducting a superconducting current comprises oxygen in a nonstoichiomeric amount.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement

Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

CLAIM 452/438

CLAIM 452/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 452 An apparatus according to anyone of claims 438, 439 and 440, wherein said means for conducting a superconducting current comprises a multivalent transition metal.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

CLAIM 452/439

CLAIM 452/439 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 439 An apparatus according to claim 438, wherein said means for conducting a superconductive current comprises a Tc greater than or equal to 26°K.
>
> CLAIM 452 An apparatus according to anyone of claims 438, 439 and 440, wherein said means for conducting a superconducting current comprises a multivalent transition metal.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe,

Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

CLAIM 452/440

CLAIM 452/440 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 440 An apparatus according to claim 438, further including a temperature controller for maintaining said means for conducting a superconducting current at a said temperature.
>
> CLAIM 452 An apparatus according to anyone of claims 438, 439 and 440, wherein said means for conducting a superconducting current comprises a multivalent transition metal.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement

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CLAIM 453/438

CLAIM 453/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 453 An apparatus according to anyone of claims 438, 439 or 440, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

CLAIM 453/439

CLAIM 453/439 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 439 An apparatus according to claim 438, wherein said means for conducting a superconductive current comprises a Tc greater than or equal to 26°K.
>
> CLAIM 453 An apparatus according to anyone of claims 438, 439 or 440, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe,

Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

The sentenced bridging page 1 and 2 of the specification states "Generally, superconductivity is considered to be a property of the metallic state of a material since all known superconductors are metallic under the conditions that cause them to be superconducting. A few normally non-metallic materials, for example, become superconducting under very high pressure wherein the pressure converts them to metals before they exhibit superconducting behavior." Applicants discovered that ceramic materials are superconductors.

CLAIM 453/440

CLAIM 453/440 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 440 An apparatus according to claim 438, further including a temperature controller for maintaining said means for conducting a superconducting current at a said temperature.
>
> CLAIM 453 An apparatus according to anyone of claims 438, 439 or 440, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement

Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

CLAIM 454/441/438

CLAIM 454/441/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 441 An apparatus according to anyone of claims 438, 439 or 440, wherein said means for conducting a superconducting current comprises oxygen.
>
> CLAIM 454 An apparatus according to claim 441, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner

has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

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"Generally, superconductivity is considered to be a property of the metallic state of a material since all known superconductors are metallic under the conditions that cause them to be superconducting. A few normally non-metallic materials, for example, become superconducting under very high pressure wherein the pressure converts them to metals before they exhibit superconducting behavior." Applicants discovered that ceramic materials are superconductors.

CLAIM 454/441/439/438

CLAIM 454/441/439/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 439 An apparatus according to claim 438, wherein said means for conducting a superconductive current comprises a Tc greater than or equal to 26°K.
>
> CLAIM 441 An apparatus according to anyone of claims 438, 439 or 440, wherein said means for conducting a superconducting current comprises oxygen.
>
> CLAIM 454 An apparatus according to claim 441, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the

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CLAIM 454/441/440/438

CLAIM 454/441/440/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 440 An apparatus according to claim 438, further including a temperature controller for maintaining said means for conducting a superconducting current at a said temperature.
>
> CLAIM 441 An apparatus according to anyone of claims 438, 439 or 440, wherein said means for conducting a superconducting current comprises oxygen.
>
> CLAIM 454 An apparatus according to claim 441, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim

without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

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CLAIM 455/442/438

CLAIM 455/442/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 442 An apparatus according to anyone of claims 438, 439 and 440, wherein said means for conducting a superconducting current comprises one or more of the groups consisting of Be, Mg, Ca, Sr, Ba, Ra, Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.
>
> CLAIM 455 An apparatus according to claim 442, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement

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CLAIM 455/442/439/438

CLAIM 455/442/439/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 439 An apparatus according to claim 438, wherein said means for conducting a superconductive current comprises a Tc greater than or equal to 26°K.
>
> CLAIM 442 An apparatus according to anyone of claims 438, 439 and 440, wherein said means for conducting a superconducting current comprises one or more of the groups consisting of Be, Mg, Ca, Sr, Ba, Ra, Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.
>
> CLAIM 455 An apparatus according to claim 442, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that

persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

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CLAIM 455/442/440/438

CLAIM 455/442/440/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 440 An apparatus according to claim 438, further including a temperature controller for maintaining said means for conducting a superconducting current at a said temperature.
>
> CLAIM 442 An apparatus according to anyone of claims 438, 439 and 440, wherein said means for conducting a superconducting current comprises one or more of the groups consisting of Be, Mg, Ca, Sr, Ba, Ra, Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.
>
> CLAIM 455 An apparatus according to claim 442, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has

expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

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CLAIM 456/443/438

CLAIM 456/443/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 443 An apparatus according to anyone of claims 438, 439 or 440, wherein said means for conducting a superconducting current comprises one or more of Be, Mg, Ca, Sr, Ba and Ra and one or more of Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.
>
> CLAIM 456 An apparatus according to claim 443, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement

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CLAIM 456/443/439/438

CLAIM 456/443/439/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
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> CLAIM 439 An apparatus according to claim 438, wherein said means for conducting a superconductive current comprises a Tc greater than or equal to 26°K.
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> CLAIM 443 An apparatus according to anyone of claims 438, 439 or 440, wherein said means for conducting a superconducting current comprises one or more of Be, Mg, Ca, Sr, Ba and Ra and one or more of Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.
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> CLAIM 456 An apparatus according to claim 443, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that

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CLAIM 456/443/440/438

CLAIM 456/443/440/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 440 An apparatus according to claim 438, further including a temperature controller for maintaining said means for conducting a superconducting current at a said temperature.
>
> CLAIM 443 An apparatus according to anyone of claims 438, 439 or 440, wherein said means for conducting a superconducting current comprises one or more of Be, Mg, Ca, Sr, Ba and Ra and one or more of Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.
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> CLAIM 456 An apparatus according to claim 443, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has

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CLAIM 457/444/438

CLAIM 457/444/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 444 An apparatus according to anyone of claims 438, 439 and 440, wherein said means for conducting a superconducting current comprises a layered structure.
>
> CLAIM 457 An apparatus according to claim 444, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner

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CLAIM 457/444/439/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 439 An apparatus according to claim 438, wherein said means for conducting a superconductive current comprises a Tc greater than or equal to 26°K.
>
> CLAIM 444 An apparatus according to anyone of claims 438, 439 and 440, wherein said means for conducting a superconducting current comprises a layered structure.
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CLAIM 458/445/438

CLAIM 458/445/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 445 An apparatus according to anyone of claims 438, 439 and 440, wherein said means for conducting a superconducting current comprises a substantially perovskite structure.
>
> CLAIM 458 An apparatus according to claim 445, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe,

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CLAIM 458/445/439/438

CLAIM 458/445/439/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
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> CLAIM 439 An apparatus according to claim 438, wherein said means for conducting a superconductive current comprises a Tc greater than or equal to 26°K.
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CLAIM 458/445/440/438

CLAIM 458/445/440/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
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> CLAIM 445 An apparatus according to anyone of claims 438, 439 and 440, wherein said means for conducting a superconducting current comprises a substantially perovskite structure.
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CLAIM 459/446/438

CLAIM 459/446/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 446 An apparatus according to anyone of claims 438, 439 and 440, wherein said means for conducting a superconducting current comprises a perovskite-like structure.
>
> CLAIM 459 An apparatus according to claim 446, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe,

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CLAIM 459/446/439/438

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> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
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> CLAIM 439 An apparatus according to claim 438, wherein said means for conducting a superconductive current comprises a Tc greater than or equal to 26°K.
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> CLAIM 446 An apparatus according to anyone of claims 438, 439 and 440, wherein said means for conducting a superconducting current comprises a perovskite-like structure.
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CLAIM 459/446/440/438

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CLAIM 460/447/438

CLAIM 460/447/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 447 An apparatus according to anyone of claims 438, 439 and 440, wherein said means for conducting a superconducting current comprises a perovskite related structure.
>
> CLAIM 460 An apparatus according to claim 447, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe,

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CLAIM 460/447/439/438

CLAIM 460/447439//438 recites:

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CLAIM 461/448/438

CLAIM 461/448/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 448 An apparatus according to anyone of claims 438, 439 and 440, wherein said means for conducting a superconducting current comprises a structure having a perovskite characteristic.
>
> CLAIM 461 An apparatus according to claim 448, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe,

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>
> CLAIM 462 An apparatus according to claim 449, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner

has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

The sentenced bridging page 1 and 2 of the specification states
"Generally, superconductivity is considered to be a property of the metallic state of a material since all known superconductors are metallic under the conditions that cause them to be superconducting. A few normally non-metallic materials, for example, become superconducting under very high pressure wherein the pressure converts them to metals before they exhibit superconducting behavior." Applicants discovered that ceramic materials are superconductors.

CLAIM 462/449/439/438

CLAIM 462/449/439/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 439 An apparatus according to claim 438, wherein said means for conducting a superconductive current comprises a Tc greater than or equal to 26°K.
>
> CLAIM 449 An apparatus according to anyone of claims 438, 439 and 440, wherein said means for conducting a superconducting current comprises a transition metal.
>
> CLAIM 462 An apparatus according to claim 449, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the

Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

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CLAIM 462/449/440/438

CLAIM 462/449/440/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 440 An apparatus according to claim 438, further including a temperature controller for maintaining said means for conducting a superconducting current at a said temperature.
>
> CLAIM 449 An apparatus according to anyone of claims 438, 439 and 440, wherein said means for conducting a superconducting current comprises a transition metal.
>
> CLAIM 462 An apparatus according to claim 449, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim

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CLAIM 463/450/438

CLAIM 463/450/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 450 An apparatus according to anyone of claims 438, 439 and 440, wherein said means for conducting a superconducting current comprises a copper oxide.
>
> CLAIM 463 An apparatus according to claim 450, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner

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CLAIM 463/450/439/438

CLAIM 463/450/439/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 439 An apparatus according to claim 438, wherein said means for conducting a superconductive current comprises a Tc greater than or equal to 26°K.
>
> CLAIM 450 An apparatus according to anyone of claims 438, 439 and 440, wherein said means for conducting a superconducting current comprises a copper oxide.
>
> CLAIM 463 An apparatus according to claim 450, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the

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CLAIM 463/450/440/438

CLAIM 463/450/440/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 440 An apparatus according to claim 438, further including a temperature controller for maintaining said means for conducting a superconducting current at a said temperature.
>
> CLAIM 450 An apparatus according to anyone of claims 438, 439 and 440, wherein said means for conducting a superconducting current comprises a copper oxide.
>
> CLAIM 463 An apparatus according to claim 450, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim

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"Generally, superconductivity is considered to be a property of the metallic state of a material since all known superconductors are metallic under the conditions that cause them to be superconducting. A few normally non-metallic materials, for example, become superconducting under very high pressure wherein the pressure converts them to metals before they exhibit superconducting behavior." Applicants discovered that ceramic materials are superconductors.

CLAIM 464/451/438

CLAIM 464/451/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 451 An apparatus according to anyone of claims 438, 439 and 440, wherein said means for conducting a superconducting current comprises oxygen in a nonstoichiomeric amount.
>
> CLAIM 464 An apparatus according to claim 451, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe,

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"Generally, superconductivity is considered to be a property of the metallic state of a material since all known superconductors are metallic under the conditions that cause them to be superconducting. A few normally non-metallic materials, for example, become superconducting under very high pressure wherein the pressure converts them to metals before they exhibit superconducting behavior." Applicants discovered that ceramic materials are superconductors.

CLAIM 464/451/439/438

CLAIM 464/451/439/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 439 An apparatus according to claim 438, wherein said means for conducting a superconductive current comprises a Tc greater than or equal to 26°K.
>
> CLAIM 451 An apparatus according to anyone of claims 438, 439 and 440, wherein said means for conducting a superconducting current comprises oxygen in a nonstoichiomeric amount.
>
> CLAIM 464 An apparatus according to claim 451, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim

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CLAIM 464/451/440/438

CLAIM 464/451/440/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 440 An apparatus according to claim 438, further including a temperature controller for maintaining said means for conducting a superconducting current at a said temperature.
>
> CLAIM 451 An apparatus according to anyone of claims 438, 439 and 440, wherein said means for conducting a superconducting current comprises oxygen in a nonstoichiomeric amount.
>
> CLAIM 464 An apparatus according to claim 451, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

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CLAIM 465/452/438

CLAIM 465/452/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 452 An apparatus according to anyone of claims 438, 439 and 440, wherein said means for conducting a superconducting current comprises a multivalent transition metal.
>
> CLAIM 465 An apparatus according to claim 452, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe,

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CLAIM 465/452/439/438

CLAIM 465/452/439/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 439 An apparatus according to claim 438, wherein said means for conducting a superconductive current comprises a Tc greater than or equal to 26°K.
>
> CLAIM 452 An apparatus according to anyone of claims 438, 439 and 440, wherein said means for conducting a superconducting current comprises a multivalent transition metal.
>
> CLAIM 465 An apparatus according to claim 452, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim

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CLAIM 465/452/440/438

CLAIM 465/452440/438 recites:

> CLAIM 438 An apparatus comprising: a means for conducting a superconducting current at a temperature greater than or equal to 26°K and a current source for providing an electric current to flow in said means for conducting a superconducting current.
>
> CLAIM 440 An apparatus according to claim 438, further including a temperature controller for maintaining said means for conducting a superconducting current at a said temperature.
>
> CLAIM 452 An apparatus according to anyone of claims 438, 439 and 440, wherein said means for conducting a superconducting current comprises a multivalent transition metal.
>
> CLAIM 465 An apparatus according to claim 452, wherein said means for conducting a superconducting current can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that

persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

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"Generally, superconductivity is considered to be a property of the metallic state of a material since all known superconductors are metallic under the conditions that cause them to be superconducting. A few normally non-metallic materials, for example, become superconducting under very high pressure wherein the pressure converts them to metals before they exhibit superconducting behavior." Applicants discovered that ceramic materials are superconductors.

CLAIM 466

CLAIM 466 recites:

> CLAIM 466 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises a property selected from one or more of the group consisting of a mixed valent oxide, a transition metal, a mixed valent transition metal, a perovskite structure, a perovskite-like structure, a perovskite related structure, a layered structure, a stoichiomeric or nonstoichiomeric oxygen contents and a dopant.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in

view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

This claim is in means plus function form and under In re Donaldson 29 USPQ 2d1845 (Fed. Cir. 1994) should be allowed since the Examiner has allowed claims to the specific examples described in Applicants' specification which corresponds to all of the allowed claims.

CLAIM 467

CLAIM 467 recites:

> CLAIM 466 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises a property selected from one or more of the group consisting of a mixed valent oxide, a transition metal, a mixed valent transition metal, a perovskite structure, a perovskite-like structure, a perovskite related structure, a layered structure, a stoichiomeric or nonstoichiomeric oxygen contents and a dopant.
>
> CLAIM 467 An apparatus according to claim 466, wherein said superconductive current carrying element is at a temperature greater than or equal to 26K.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole

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CLAIM 468

CLAIM 468 recites:

> CLAIM 466 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises a property selected from one or more of the group consisting of a mixed valent oxide, a transition metal, a mixed valent transition metal, a perovskite structure, a perovskite-like structure, a perovskite related structure, a layered structure, a stoichiomeric or nonstoichiomeric oxygen contents and a dopant.
>
> CLAIM 468 An apparatus according to claim 466, further including a temperature controller for maintaining said superconductive current carrying element at a temperature less than said Tc.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole

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CLAIM 469/466

CLAIM 469/466 recites:

> CLAIM 466 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises a property selected from one or more of the group consisting of a mixed valent oxide, a transition metal, a mixed valent transition metal, a perovskite structure, a perovskite-like structure, a perovskite related structure, a layered structure, a stoichiomeric or nonstoichiomeric oxygen contents and a dopant.
>
> CLAIM 469 An apparatus according to anyone of claims 466, 467 or 468, wherein said superconductive current carrying element comprises one or more of the group consisting of Be, Mg, Ca, Sr, Ba, Ra, Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the

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CLAIM 469/467

CLAIM 469/467 recites:

> CLAIM 466 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises a property selected from one or more of the group consisting of a mixed valent oxide, a transition metal, a mixed valent transition metal, a perovskite structure, a perovskite-like structure, a perovskite related structure, a layered structure, a stoichiomeric or nonstoichiomeric oxygen contents and a dopant.
>
> CLAIM 467 An apparatus according to claim 466, wherein said superconductive current carrying element is at a temperature greater than or equal to 26K.
>
> CLAIM 469 An apparatus according to anyone of claims 466, 467 or 468, wherein said superconductive current carrying element comprises one or more of the group consisting of Be, Mg, Ca, Sr, Ba, Ra, Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that

come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

CLAIM 469/468

CLAIM 469/468 recites:

> CLAIM 466 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises a property selected from one or more of the group consisting of a mixed valent oxide, a transition metal, a mixed valent transition metal, a perovskite structure, a perovskite-like structure, a perovskite related structure, a layered structure, a stoichiomeric or nonstoichiomeric oxygen contents and a dopant.
>
> CLAIM 468 An apparatus according to claim 466, further including a temperature controller for maintaining said superconductive current carrying element at a temperature less than said Tc.
>
> CLAIM 469 An apparatus according to anyone of claims 466, 467 or 468, wherein said superconductive current carrying element comprises one or more of the group consisting of Be, Mg, Ca, Sr, Ba, Ra, Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on

Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

CLAIM 470/466

CLAIM 470/466 recites:

CLAIM 466 An apparatus comprising:

a superconductive current carrying element comprising a Tc ≥ 26K

said superconductive current carrying element comprises a property selected from one or more of the group consisting of a mixed valent oxide, a transition metal, a mixed valent transition metal, a perovskite structure, a perovskite-like structure, a perovskite related structure, a layered structure, a stoichiomeric or nonstoichiomeric oxygen contents and a dopant.

CLAIM 470 An apparatus according to anyone of claims 466, 467 or 468, wherein said superconductive current carrying element comprises one or more of Be, Mg, Ca, Sr, Ba and Ra and one or more of Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim

without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

CLAIM 470/467

CLAIM 470/467 recites:

CLAIM 466 An apparatus comprising:

a superconductive current carrying element comprising a Tc ≥ 26K

said superconductive current carrying element comprises a property selected from one or more of the group consisting of a mixed valent oxide, a transition metal, a mixed valent transition metal, a perovskite structure, a perovskite-like structure, a perovskite related structure, a layered structure, a stoichiomeric or nonstoichiomeric oxygen contents and a dopant.

CLAIM 467 An apparatus according to claim 466, wherein said superconductive current carrying element is at a temperature greater than or equal to 26K.

CLAIM 470 An apparatus according to anyone of claims 466, 467 or 468, wherein said superconductive current carrying element comprises one or more of Be, Mg, Ca, Sr, Ba and Ra and one or more of Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on

Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

CLAIM 470/468

CLAIM 470/468 recites:

CLAIM 466 An apparatus comprising:

a superconductive current carrying element comprising a Tc ≥ 26K

said superconductive current carrying element comprises a property selected from one or more of the group consisting of a mixed valent oxide, a transition metal, a mixed valent transition metal, a perovskite structure, a perovskite-like structure, a perovskite related structure, a layered structure, a stoichiomeric or nonstoichiomeric oxygen contents and a dopant.

CLAIM 468 An apparatus according to claim 466, further including a temperature controller for maintaining said superconductive current carrying element at a temperature less than said Tc.

CLAIM 470 An apparatus according to anyone of claims 466, 467 or 468, wherein said superconductive current carrying element comprises one or more of Be, Mg, Ca, Sr, Ba and Ra and one or more of Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

CLAIM 471/469/466

CLAIM 471/469/466 recites:

> CLAIM 466 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises a property selected from one or more of the group consisting of a mixed valent oxide, a transition metal, a mixed valent transition metal, a perovskite structure, a perovskite-like structure, a perovskite related structure, a layered structure, a stoichiomeric or nonstoichiomeric oxygen contents and a dopant.
>
> CLAIM 469 An apparatus according to anyone of claims 466, 467 or 468, wherein said superconductive current carrying element comprises one or more of the group consisting of Be, Mg, Ca, Sr, Ba, Ra, Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.
>
> CLAIM 471 An apparatus according to claim 469, wherein said superconductive current carrying element comprises a transition metal.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on

Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

CLAIM 471/469/467

CLAIM 471/469//467 recites:

CLAIM 466 An apparatus comprising:

a superconductive current carrying element comprising a Tc ≥ 26K

said superconductive current carrying element comprises a property selected from one or more of the group consisting of a mixed valent oxide, a transition metal, a mixed valent transition metal, a perovskite structure, a perovskite-like structure, a perovskite related structure, a layered structure, a stoichiomeric or nonstoichiomeric oxygen contents and a dopant.

CLAIM 467 An apparatus according to claim 466, wherein said superconductive current carrying element is at a temperature greater than or equal to 26K.

CLAIM 469 An apparatus according to anyone of claims 466, 467 or 468, wherein said superconductive current carrying element comprises one or more of the group consisting of Be, Mg, Ca, Sr, Ba, Ra, Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.

CLAIM 471 An apparatus according to claim 469, wherein said superconductive current carrying element comprises a transition metal.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

CLAIM 471/469/468

CLAIM 471/469/468 recites:

CLAIM 466 An apparatus comprising:

a superconductive current carrying element comprising a Tc ≥ 26K

said superconductive current carrying element comprises a property selected from one or more of the group consisting of a mixed valent oxide, a transition metal, a mixed valent transition metal, a perovskite structure, a perovskite-like structure, a perovskite related structure, a layered structure, a stoichiomeric or nonstoichiomeric oxygen contents and a dopant.

CLAIM 468 An apparatus according to claim 466, further including a temperature controller for maintaining said superconductive current carrying element at a temperature less than said Tc.

CLAIM 469 An apparatus according to anyone of claims 466, 467 or 468, wherein said superconductive current carrying element comprises one or more of the group consisting of Be, Mg, Ca, Sr, Ba, Ra, Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.

CLAIM 471 An apparatus according to claim 469, wherein said superconductive current carrying element comprises a transition metal.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

CLAIM 472/470/466

CLAIM 472/470/466 recites:

> CLAIM 466 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises a property selected from one or more of the group consisting of a mixed valent oxide, a transition metal, a mixed valent transition metal, a perovskite structure, a perovskite-like structure, a perovskite related structure, a layered structure, a stoichiomeric or nonstoichiomeric oxygen contents and a dopant.
>
> CLAIM 470 An apparatus according to anyone of claims 466, 467 or 468, wherein said superconductive current carrying element comprises one or more of Be, Mg, Ca, Sr, Ba and Ra and one or more of Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.
>
> CLAIM 472 An apparatus according to claim 470, wherein said superconductive current carrying element comprises a transition metal.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on

Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

CLAIM 472/470/467

CLAIM 472/470/467 recites:

> CLAIM 466 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises a property selected from one or more of the group consisting of a mixed valent oxide, a transition metal, a mixed valent transition metal, a perovskite structure, a perovskite-like structure, a perovskite related structure, a layered structure, a stoichiomeric or nonstoichiomeric oxygen contents and a dopant.
>
> CLAIM 467 An apparatus according to claim 466, wherein said superconductive current carrying element is at a temperature greater than or equal to 26K.
>
> CLAIM 470 An apparatus according to anyone of claims 466, 467 or 468, wherein said superconductive current carrying element comprises one or more of Be, Mg, Ca, Sr, Ba and Ra and one or more of Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.
>
> CLAIM 472 An apparatus according to claim 470, wherein said superconductive current carrying element comprises a transition metal.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

CLAIM 472/470/468

CLAIM 472/470/468 recites:

> CLAIM 466 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises a property selected from one or more of the group consisting of a mixed valent oxide, a transition metal, a mixed valent transition metal, a perovskite structure, a perovskite-like structure, a perovskite related structure, a layered structure, a stoichiomeric or nonstoichiomeric oxygen contents and a dopant.
>
> CLAIM 468 An apparatus according to claim 466, further including a temperature controller for maintaining said superconductive current carrying element at a temperature less than said Tc.
>
> CLAIM 470 An apparatus according to anyone of claims 466, 467 or 468, wherein said superconductive current carrying element comprises one or more of Be, Mg, Ca, Sr, Ba and Ra and one or more of Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.
>
> CLAIM 472 An apparatus according to claim 470, wherein said superconductive current carrying element comprises a transition metal.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

CLAIM 473/466

CLAIM 473/466 recites:

> CLAIM 466 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises a property selected from one or more of the group consisting of a mixed valent oxide, a transition metal, a mixed valent transition metal, a perovskite structure, a perovskite-like structure, a perovskite related structure, a layered structure, a stoichiomeric or nonstoichiomeric oxygen contents and a dopant.
>
> CLAIM 473 An apparatus according to anyone of claims 466, 467, or 468, wherein said superconducting current carrying element can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the

Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

The sentenced bridging page 1 and 2 of the specification states
"Generally, superconductivity is considered to be a property of the metallic state of a material since all known superconductors are metallic under the conditions that cause them to be superconducting. A few normally non-metallic materials, for example, become superconducting under very high pressure wherein the pressure converts them to metals before they exhibit superconducting behavior." Applicants discovered that ceramic materials are superconductors.

CLAIM 473/467

CLAIM 473/467 recites:

> CLAIM 466 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises a property selected from one or more of the group consisting of a mixed valent oxide, a transition metal, a mixed valent transition metal, a perovskite structure, a perovskite-like structure, a perovskite related structure, a layered structure, a stoichiomeric or nonstoichiomeric oxygen contents and a dopant.
>
> CLAIM 467 An apparatus according to claim 466, wherein said superconductive current carrying element is at a temperature greater than or equal to 26K.
>
> CLAIM 473 An apparatus according to anyone of claims 466, 467, or 468, wherein said superconducting current carrying element can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that

come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

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"Generally, superconductivity is considered to be a property of the metallic state of a material since all known superconductors are metallic under the conditions that cause them to be superconducting. A few normally non-metallic materials, for example, become superconducting under very high pressure wherein the pressure converts them to metals before they exhibit superconducting behavior." Applicants discovered that ceramic materials are superconductors.

CLAIM 473/468

CLAIM 473/468 recites:

> CLAIM 466 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises a property selected from one or more of the group consisting of a mixed valent oxide, a transition metal, a mixed valent transition metal, a perovskite structure, a perovskite-like structure, a perovskite related structure, a layered structure, a stoichiomeric or nonstoichiomeric oxygen contents and a dopant.
>
> CLAIM 468 An apparatus according to claim 466, further including a temperature controller for maintaining said superconductive current carrying element at a temperature less than said Tc.
>
> CLAIM 473 An apparatus according to anyone of claims 466, 467, or 468, wherein said superconducting current carrying element can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on

Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

The sentenced bridging page 1 and 2 of the specification states
"Generally, superconductivity is considered to be a property of the metallic state of a material since all known superconductors are metallic under the conditions that cause them to be superconducting. A few normally non-metallic materials, for example, become superconducting under very high pressure wherein the pressure converts them to metals before they exhibit superconducting behavior." Applicants discovered that ceramic materials are superconductors.

CLAIM 474/471/469/466

CLAIM 474/471/469/466 recites:

CLAIM 466 An apparatus comprising:

a superconductive current carrying element comprising a Tc ≥ 26K

said superconductive current carrying element comprises a property selected from one or more of the group consisting of a mixed valent oxide, a transition metal, a mixed valent transition metal, a perovskite structure, a perovskite-like structure, a perovskite related structure, a layered structure, a stoichiomeric or nonstoichiomeric oxygen contents and a dopant.

CLAIM 469 An apparatus according to anyone of claims 466, 467 or 468, wherein said superconductive current carrying element comprises one or more of the group consisting of Be, Mg, Ca, Sr, Ba, Ra, Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.

CLAIM 471 An apparatus according to claim 469, wherein said superconductive current carrying element comprises a transition metal.

CLAIM 474 An apparatus according to of claim 471, wherein said superconducting current carrying element can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

The sentenced bridging page 1 and 2 of the specification states
"Generally, superconductivity is considered to be a property of the metallic state of a material since all known superconductors are metallic under the conditions that cause them to be superconducting. A few normally non-metallic materials, for example, become superconducting under very high pressure wherein the pressure converts them to metals before they exhibit superconducting behavior." Applicants discovered that ceramic materials are superconductors.

CLAIM 474/471/469/467

CLAIM 474/471/469/467 recites:

CLAIM 466 An apparatus comprising:

a superconductive current carrying element comprising a Tc ≥ 26K

said superconductive current carrying element comprises a property selected from one or more of the group consisting of a mixed valent oxide, a transition metal, a mixed valent transition metal, a perovskite structure, a perovskite-like structure, a perovskite related structure, a layered structure, a stoichiomeric or nonstoichiomeric oxygen contents and a dopant.

CLAIM 467 An apparatus according to claim 466, wherein said superconductive current carrying element is at a temperature greater than or equal to 26K.

CLAIM 469 An apparatus according to anyone of claims 466, 467 or 468, wherein said superconductive current carrying element comprises one or more of the group consisting of Be, Mg, Ca, Sr, Ba, Ra, Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.

CLAIM 471 An apparatus according to claim 469, wherein said superconductive current carrying element comprises a transition metal.

CLAIM 474 An apparatus according to of claim 471, wherein said superconducting current carrying element can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

The sentenced bridging page 1 and 2 of the specification states "Generally, superconductivity is considered to be a property of the metallic state of a material since all known superconductors are metallic under the conditions that cause them to be superconducting. A few normally non-metallic materials, for example, become superconducting under very high pressure wherein the pressure converts them to metals before they exhibit superconducting behavior." Applicants discovered that ceramic materials are superconductors.

CLAIM 474/471/469/468

CLAIM 474/471/469/468 recites:

CLAIM 466 An apparatus comprising:

a superconductive current carrying element comprising a Tc ≥ 26K

said superconductive current carrying element comprises a property selected from one or more of the group consisting of a mixed valent oxide, a transition metal, a mixed valent transition metal, a perovskite structure, a perovskite-like structure, a perovskite related structure, a layered structure, a stoichiomeric or nonstoichiomeric oxygen contents and a dopant.

CLAIM 468 An apparatus according to claim 466, further including a temperature controller for maintaining said superconductive current carrying element at a temperature less than said Tc.

CLAIM 469 An apparatus according to anyone of claims 466, 467 or 468, wherein said superconductive current carrying element comprises one or more of the group consisting of Be, Mg, Ca, Sr, Ba, Ra, Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.

CLAIM 471 An apparatus according to claim 469, wherein said superconductive current carrying element comprises a transition metal.

CLAIM 474 An apparatus according to of claim 471, wherein said superconducting current carrying element can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

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CLAIM 475/472/470/466

CLAIM 475/472/470/466 recites:

CLAIM 466 An apparatus comprising:

a superconductive current carrying element comprising a Tc ≥ 26K

said superconductive current carrying element comprises a property selected from one or more of the group consisting of a mixed valent oxide, a transition metal, a mixed valent transition metal, a perovskite structure, a perovskite-like structure, a perovskite related structure, a layered structure, a stoichiomeric or nonstoichiomeric oxygen contents and a dopant.

CLAIM 470 An apparatus according to anyone of claims 466, 467 or 468, wherein said superconductive current carrying element comprises one or more of Be, Mg, Ca, Sr, Ba and Ra and one or more of Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.

CLAIM 472 An apparatus according to claim 470, wherein said superconductive current carrying element comprises a transition metal.

CLAIM 475 An apparatus according to of claim 472, wherein said superconducting current carrying element can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

The sentenced bridging page 1 and 2 of the specification states
"Generally, superconductivity is considered to be a property of the metallic state of a material since all known superconductors are metallic under the conditions that cause them to be superconducting. A few normally non-metallic materials, for example, become superconducting under very high pressure wherein the pressure converts them to metals before they exhibit superconducting behavior." Applicants discovered that ceramic materials are superconductors.

CLAIM 475/472/470/467

CLAIM 475/472/470/467 recites:

> CLAIM 466 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises a property selected from one or more of the group consisting of a mixed valent oxide, a transition metal, a mixed valent transition metal, a perovskite structure, a perovskite-like structure, a perovskite related structure, a layered structure, a stoichiomeric or nonstoichiomeric oxygen contents and a dopant.
>
> CLAIM 467 An apparatus according to claim 466, wherein said superconductive current carrying element is at a temperature greater than or equal to 26K.
>
> CLAIM 470 An apparatus according to anyone of claims 466, 467 or 468, wherein said superconductive current carrying element comprises one or more of Be, Mg, Ca, Sr, Ba and Ra and one or more of Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.
>
> CLAIM 472 An apparatus according to claim 470, wherein said superconductive current carrying element comprises a transition metal.

CLAIM 475 An apparatus according to of claim 472, wherein said superconducting current carrying element can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

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CLAIM 475/472/470/468

CLAIM 475/472/470/468 recites:

> CLAIM 466 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises a property selected from one or more of the group consisting of a mixed valent oxide, a transition metal, a mixed valent transition metal, a perovskite structure, a perovskite-like structure, a perovskite related structure, a layered structure, a stoichiomeric or nonstoichiomeric oxygen contents and a dopant.
>
> CLAIM 468 An apparatus according to claim 466, further including a temperature controller for maintaining said superconductive current carrying element at a temperature less than said Tc.
>
> CLAIM 470 An apparatus according to anyone of claims 466, 467 or 468, wherein said superconductive current carrying element comprises one or more of Be, Mg, Ca, Sr, Ba and Ra and one or more of Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.
>
> CLAIM 472 An apparatus according to claim 470, wherein said superconductive current carrying element comprises a transition metal.

CLAIM 475 An apparatus according to of claim 472, wherein said superconducting current carrying element can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

The sentenced bridging page 1 and 2 of the specification states "Generally, superconductivity is considered to be a property of the metallic state of a material since all known superconductors are metallic under the conditions that cause them to be superconducting. A few normally non-metallic materials, for example, become superconducting under very high pressure wherein the pressure converts them to metals before they exhibit superconducting behavior." Applicants discovered that ceramic materials are superconductors.

CLAIM 476

CLAIM 476 recites:

> CLAIM 476 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises an oxide, a layered perovskite structure or a layered perovskite-like structure and comprises a stoichiomeric or nonstoichiomeric oxygen content.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

CLAIM 477

CLAIM 477 recites:

> CLAIM 476 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises an oxide, a layered perovskite structure or a layered perovskite-like structure and comprises a stoichiomeric or nonstoichiomeric oxygen content.
>
> CLAIM 477 An apparatus according to claim 476, wherein said superconductive current carrying element is at a temperature greater than or equal to 26 K.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner

has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

CLAIM 478

CLAIM 478 recites:

> CLAIM 476 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises an oxide, a layered perovskite structure or a layered perovskite-like structure and comprises a stoichiomeric or nonstoichiomeric oxygen content.
>
> CLAIM 478 An apparatus according to claim 476, further including a temperature controller for maintaining said superconductive current carrying element at a temperature less than said Tc.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe,

Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

CLAIM 479/476

CLAIM 479/476 recites:

> CLAIM 476 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises an oxide, a layered perovskite structure or a layered perovskite-like structure and comprises a stoichiomeric or nonstoichiomeric oxygen content.
>
> CLAIM 479 An apparatus according to anyone of claims 476, 477 or 478, wherein said superconductive current carrying element comprises one or more of the group consisting of Be, Mg, Ca, Sr, Ba, Ra, Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement

Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

CLAIM 479/477

CLAIM 479/477 recites:

> CLAIM 476 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises an oxide, a layered perovskite structure or a layered perovskite-like structure and comprises a stoichiomeric or nonstoichiomeric oxygen content.
>
> CLAIM 477 An apparatus according to claim 476, wherein said superconductive current carrying element is at a temperature greater than or equal to 26 K.
>
> CLAIM 479 An apparatus according to anyone of claims 476, 477 or 478, wherein said superconductive current carrying element comprises one or more of the group consisting of Be, Mg, Ca, Sr, Ba, Ra, Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that

persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

CLAIM 479/478

CLAIM 479/478 recites:

> CLAIM 476 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises an oxide, a layered perovskite structure or a layered perovskite-like structure and comprises a stoichiomeric or nonstoichiomeric oxygen content.
>
> CLAIM 478 An apparatus according to claim 476, further including a temperature controller for maintaining said superconductive current carrying element at a temperature less than said Tc.
>
> CLAIM 479 An apparatus according to anyone of claims 476, 477 or 478, wherein said superconductive current carrying element comprises one or more of the group consisting of Be, Mg, Ca, Sr, Ba, Ra, Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has

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CLAIM 480/476

CLAIM 480/476 recites:

> CLAIM 476 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises an oxide, a layered perovskite structure or a layered perovskite-like structure and comprises a stoichiomeric or nonstoichiomeric oxygen content.
>
> CLAIM 480 An apparatus according to anyone of claims 476, 477 or 478, wherein said superconductive current carrying element comprises one or more of Be, Mg, Ca, Sr, Ba and Ra and one or more of Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole

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CLAIM 480/477

CLAIM 480/477 recites:

> CLAIM 476 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises an oxide, a layered perovskite structure or a layered perovskite-like structure and comprises a stoichiomeric or nonstoichiomeric oxygen content.
>
> CLAIM 477 An apparatus according to claim 476, wherein said superconductive current carrying element is at a temperature greater than or equal to 26 K.
>
> CLAIM 480 An apparatus according to anyone of claims 476, 477 or 478, wherein said superconductive current carrying element comprises one or more of Be, Mg, Ca, Sr, Ba and Ra and one or more of Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that

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CLAIM 480/478

CLAIM 480/478 recites:

> CLAIM 476 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises an oxide, a layered perovskite structure or a layered perovskite-like structure and comprises a stoichiomeric or nonstoichiomeric oxygen content.
>
> CLAIM 478 An apparatus according to claim 476, further including a temperature controller for maintaining said superconductive current carrying element at a temperature less than said Tc.
>
> CLAIM 480 An apparatus according to anyone of claims 476, 477 or 478, wherein said superconductive current carrying element comprises one or more of Be, Mg, Ca, Sr, Ba and Ra and one or more of Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has

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CLAIM 481/479/476

CLAIM 481/479/476 recites:

> CLAIM 476 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises an oxide, a layered perovskite structure or a layered perovskite-like structure and comprises a stoichiomeric or nonstoichiomeric oxygen content.
>
> CLAIM 479 An apparatus according to anyone of claims 476, 477 or 478, wherein said superconductive current carrying element comprises one or more of the group consisting of Be, Mg, Ca, Sr, Ba, Ra, Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.
>
> CLAIM 481 An apparatus according to claim 479, wherein said superconductive current carrying element comprises a transition metal.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that

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CLAIM 481/479/477

CLAIM 481/479/477 recites:

> CLAIM 476 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises an oxide, a layered perovskite structure or a layered perovskite-like structure and comprises a stoichiomeric or nonstoichiomeric oxygen content.
>
> CLAIM 477 An apparatus according to claim 476, wherein said superconductive current carrying element is at a temperature greater than or equal to 26 K.
>
> CLAIM 479 An apparatus according to anyone of claims 476, 477 or 478, wherein said superconductive current carrying element comprises one or more of the group consisting of Be, Mg, Ca, Sr, Ba, Ra, Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.
>
> CLAIM 481 An apparatus according to claim 479, wherein said superconductive current carrying element comprises a transition metal.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner

has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

CLAIM 481/479/478

CLAIM 481/479/478 recites:

> CLAIM 476 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises an oxide, a layered perovskite structure or a layered perovskite-like structure and comprises a stoichiomeric or nonstoichiomeric oxygen content.
>
> CLAIM 478 An apparatus according to claim 476, further including a temperature controller for maintaining said superconductive current carrying element at a temperature less than said Tc.
>
> CLAIM 479 An apparatus according to anyone of claims 476, 477 or 478, wherein said superconductive current carrying element comprises one or more of the group consisting of Be, Mg, Ca, Sr, Ba, Ra, Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.
>
> CLAIM 481 An apparatus according to claim 479, wherein said superconductive current carrying element comprises a transition metal.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has

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CLAIM 482/480/476

CLAIM 482/480/476 recites:

> CLAIM 476 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises an oxide, a layered perovskite structure or a layered perovskite-like structure and comprises a stoichiomeric or nonstoichiomeric oxygen content.
>
> CLAIM 480 An apparatus according to anyone of claims 476, 477 or 478, wherein said superconductive current carrying element comprises one or more of Be, Mg, Ca, Sr, Ba and Ra and one or more of Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.
>
> CLAIM 482 An apparatus according to claim 480, wherein said superconductive current carrying element comprises a transition metal.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that

persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

CLAIM 482/480/477

CLAIM 482/480/477 recites:

> CLAIM 476 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises an oxide, a layered perovskite structure or a layered perovskite-like structure and comprises a stoichiomeric or nonstoichiomeric oxygen content.
>
> CLAIM 477 An apparatus according to claim 476, wherein said superconductive current carrying element is at a temperature greater than or equal to 26 K.
>
> CLAIM 480 An apparatus according to anyone of claims 476, 477 or 478, wherein said superconductive current carrying element comprises one or more of Be, Mg, Ca, Sr, Ba and Ra and one or more of Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.
>
> CLAIM 482 An apparatus according to claim 480, wherein said superconductive current carrying element comprises a transition metal.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner

has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

CLAIM 482/480/478

CLAIM 482/480/478 recites:

> CLAIM 476 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises an oxide, a layered perovskite structure or a layered perovskite-like structure and comprises a stoichiomeric or nonstoichiomeric oxygen content.
>
> CLAIM 478 An apparatus according to claim 476, further including a temperature controller for maintaining said superconductive current carrying element at a temperature less than said Tc.
>
> CLAIM 480 An apparatus according to anyone of claims 476, 477 or 478, wherein said superconductive current carrying element comprises one or more of Be, Mg, Ca, Sr, Ba and Ra and one or more of Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.
>
> CLAIM 482 An apparatus according to claim 480, wherein said superconductive current carrying element comprises a transition metal.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has

given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

CLAIM 483

CLAIM 483 recites:

> CLAIM 476 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises an oxide, a layered perovskite structure or a layered perovskite-like structure and comprises a stoichiomeric or nonstoichiomeric oxygen content.
>
> CLAIM 483 An apparatus according to claim 476, wherein said superconductive current carrying element comprises copper oxide.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner

has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

CLAIM 484/476

CLAIM 484/476 recites:

> CLAIM 476 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises an oxide, a layered perovskite structure or a layered perovskite-like structure and comprises a stoichiomeric or nonstoichiomeric oxygen content.
>
> CLAIM 484 An apparatus according to anyone of claims 476, 477 or 478, wherein said superconductive current carrying element can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe,

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The sentenced bridging page 1 and 2 of the specification states
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CLAIM 484/477

CLAIM 484/477 recites:

> CLAIM 476 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises an oxide, a layered perovskite structure or a layered perovskite-like structure and comprises a stoichiomeric or nonstoichiomeric oxygen content.
>
> CLAIM 477 An apparatus according to claim 476, wherein said superconductive current carrying element is at a temperature greater than or equal to 26 K.
>
> CLAIM 484 An apparatus according to anyone of claims 476, 477 or 478, wherein said superconductive current carrying element can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim

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CLAIM 484/478

CLAIM 484/478 recites:

> CLAIM 476 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises an oxide, a layered perovskite structure or a layered perovskite-like structure and comprises a stoichiomeric or nonstoichiomeric oxygen content.
>
> CLAIM 478 An apparatus according to claim 476, further including a temperature controller for maintaining said superconductive current carrying element at a temperature less than said Tc.
>
> CLAIM 484 An apparatus according to anyone of claims 476, 477 or 478, wherein said superconductive current carrying element can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that

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CLAIM 485/479/476

CLAIM 485/479/476 recites:

> CLAIM 476 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises an oxide, a layered perovskite structure or a layered perovskite-like structure and comprises a stoichiomeric or nonstoichiomeric oxygen content.
>
> CLAIM 479 An apparatus according to anyone of claims 476, 477 or 478, wherein said superconductive current carrying element comprises one or more of the group consisting of Be, Mg, Ca, Sr, Ba, Ra, Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.
>
> CLAIM 485 An apparatus according to claim 479, wherein said superconductive current carrying element can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that

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CLAIM 485/479/477

CLAIM 485/479/477 recites:

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>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises an oxide, a layered perovskite structure or a layered perovskite-like structure and comprises a stoichiomeric or nonstoichiomeric oxygen content.
>
> CLAIM 477 An apparatus according to claim 476, wherein said superconductive current carrying element is at a temperature greater than or equal to 26 K.
>
> CLAIM 479 An apparatus according to anyone of claims 476, 477 or 478, wherein said superconductive current carrying element comprises one or more of the group consisting of Be, Mg, Ca, Sr, Ba, Ra, Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.
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> CLAIM 485 An apparatus according to claim 479, wherein said superconductive current carrying element can be made according to known principles of ceramic science.

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CLAIM 485/479/478

CLAIM 485/479/478 recites:

> CLAIM 476 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises an oxide, a layered perovskite structure or a layered perovskite-like structure and comprises a stoichiomeric or nonstoichiomeric oxygen content.
>
> CLAIM 478 An apparatus according to claim 476, further including a temperature controller for maintaining said superconductive current carrying element at a temperature less than said Tc.
>
> CLAIM 479 An apparatus according to anyone of claims 476, 477 or 478, wherein said superconductive current carrying element comprises one or more of the group consisting of Be, Mg, Ca, Sr, Ba, Ra, Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.
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> CLAIM 485 An apparatus according to claim 479, wherein said superconductive current carrying element can be made according to known principles of ceramic science.

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CLAIM 486/480/476

CLAIM 486/480/476 recites:

> CLAIM 476 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises an oxide, a layered perovskite structure or a layered perovskite-like structure and comprises a stoichiomeric or nonstoichiomeric oxygen content.
>
> CLAIM 480 An apparatus according to anyone of claims 476, 477 or 478, wherein said superconductive current carrying element comprises one or more of Be, Mg, Ca, Sr, Ba and Ra and one or more of Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.
>
> CLAIM 486 An apparatus according to claim 480, wherein said superconductive current carrying element can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that

persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

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CLAIM 486/480/477

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>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises an oxide, a layered perovskite structure or a layered perovskite-like structure and comprises a stoichiomeric or nonstoichiomeric oxygen content.
>
> CLAIM 477 An apparatus according to claim 476, wherein said superconductive current carrying element is at a temperature greater than or equal to 26 K.
>
> CLAIM 480 An apparatus according to anyone of claims 476, 477 or 478, wherein said superconductive current carrying element comprises one or more of Be, Mg, Ca, Sr, Ba and Ra and one or more of Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.
>
> CLAIM 486 An apparatus according to claim 480, wherein said superconductive current carrying element can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner

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CLAIM 486/480/478

CLAIM 486/480/478 recites:

> CLAIM 476 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises an oxide, a layered perovskite structure or a layered perovskite-like structure and comprises a stoichiomeric or nonstoichiomeric oxygen content.
>
> CLAIM 478 An apparatus according to claim 476, further including a temperature controller for maintaining said superconductive current carrying element at a temperature less than said Tc.
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> CLAIM 480 An apparatus according to anyone of claims 476, 477 or 478, wherein said superconductive current carrying element comprises one or more of Be, Mg, Ca, Sr, Ba and Ra and one or more of Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.
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CLAIM 487/481/479/476

CLAIM 487/481/479/476 recites:

> CLAIM 476 An apparatus comprising:
>
> a superconductive current carrying element comprising a Tc ≥ 26K
>
> said superconductive current carrying element comprises an oxide, a layered perovskite structure or a layered perovskite-like structure and comprises a stoichiomeric or nonstoichiomeric oxygen content.
>
> CLAIM 479 An apparatus according to anyone of claims 476, 477 or 478, wherein said superconductive current carrying element comprises one or more of the group consisting of Be, Mg, Ca, Sr, Ba, Ra, Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.
>
> CLAIM 481 An apparatus according to claim 479, wherein said superconductive current carrying element comprises a transition metal.
>
> CLAIM 487 An apparatus according to claim 481, wherein said superconductive current carrying element can be made according to known principles of ceramic science.

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CLAIM 487/481/479/477

CLAIM 487/481/479/477 recites:

CLAIM 476 An apparatus comprising:

a superconductive current carrying element comprising a Tc ≥ 26K

said superconductive current carrying element comprises an oxide, a layered perovskite structure or a layered perovskite-like structure and comprises a stoichiomeric or nonstoichiomeric oxygen content.

CLAIM 477 An apparatus according to claim 476, wherein said superconductive current carrying element is at a temperature greater than or equal to 26 K.

CLAIM 479 An apparatus according to anyone of claims 476, 477 or 478, wherein said superconductive current carrying element comprises one or more of the group consisting of Be, Mg, Ca, Sr, Ba, Ra, Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.

CLAIM 481 An apparatus according to claim 479, wherein said superconductive current carrying element comprises a transition metal.

CLAIM 487 An apparatus according to claim 481, wherein said superconductive current carrying element can be made according to known principles of ceramic science.

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CLAIM 487/481/479/478

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>
> CLAIM 479 An apparatus according to anyone of claims 476, 477 or 478, wherein said superconductive current carrying element comprises one or more of the group consisting of Be, Mg, Ca, Sr, Ba, Ra, Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.
>
> CLAIM 481 An apparatus according to claim 479, wherein said superconductive current carrying element comprises a transition metal.

CLAIM 487 An apparatus according to claim 481, wherein said superconductive current carrying element can be made according to known principles of ceramic science.

The Examiner has not made as to this claim a prima facie case of lack of enablement for the reasons given in all volumes of this Brief. The Examiner has given no specific reasons for rejecting this claim as not enabled. The Examiner has not shown why a person of ordinary skill in the art cannot, based on Applicants' teaching, determine without undue experimentation, species that come within the scope of this claim other than those that the Examiner has expressly stated are enabled. Applicants have shown extensive evidence that persons of skill in the art can determine species within the scope of this claim without undue experimentation. Examples of Applicants' evidence are: the Examiner's First, Second, Third and Fourth Enablement Statements, the Poole 1988, 1995 and 1996 Enablement Statements, the Schuller Enablement Statement and Applicants' Affidavits of Mitzi, Dinger, Tsuei, Shaw, Duncombe, Newns and Bednorz in Brief Attachments AH to AR. In particular the Examiner has given no reason for why this claim is not enabled by Applicants' teaching in view of the underlined limitation of the claim which includes specific limitations on the scope of this claim.

The sentenced bridging page 1 and 2 of the specification states "Generally, superconductivity is considered to be a property of the metallic state of a material since all known superconductors are metallic under the conditions that cause them to be superconducting. A few normally non-metallic materials, for example, become superconducting under very high pressure wherein the pressure converts them to metals before they exhibit superconducting behavior." Applicants discovered that ceramic materials are superconductors.